THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte NOBORU YONEKAWA, YASUHIRO NAKAGAMI and KOUJI MATSUSHITA

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Appeal No. 1998-0126
Application 08/272,700

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ON BRIEF

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Before THOMAS, FLEMING and HECKER, Administrative Patent Judges.

HECKER, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1, 4 through 11 and 14 through 24. Claims

2, 3, 12 and 13 were canceled in an amendment after final rejection, paper no. 10, received October 22, 1996.

The invention relates to a corona discharge device used in an electrophotographic image forming apparatus. Corona discharge devices are used for charging the photosensitive drum in such an apparatus. In particular, noting Figures 1(A) to 1(C), the discharge device has a row of sharp ends 11, arranged with a pitch P, and spaced from a charge receiving member (e.g., drum) by a distance D. A preferred relationship between D and P is expressed as 4#D/P#6. The sharp ends 11 are made of a conductive material containing nickel, chromium and molybdenum, and are coated with a dielectric ceramic.

Representative independent claims 1, 4, 5 and 6 are reproduced as follows:

1. A corona discharge device used in an electrophotographic image forming apparatus comprising:

a discharge member having sharp discharge ends; and

means for applying to said discharge member a discharge voltage containing at least an AC voltage component.

4. A corona discharge device used in an

electrophotographic image forming apparatus comprising:

a discharge member having sharp dicharge ends, wherein at least each discharge end portion including said discharge end is coated with a material having a high electric resistance.

5. A corona discharge device used in an electrophotographic image forming apparatus comprising:

a discharge member having a plurality of sharp discharge ends arranged in a row, wherein a distance D (mm) of a space between a discharge end and a charge receiving member to be charged in said image forming apparatus or between said discharge end and a path of said charge receiving member, and a pitch P (mm) between said discharge ends are determined to establish a relationship of 4#D/P#6.

6. A corona discharge device used in an electrophotographic image forming apparatus comprising:

a discharge member having sharp discharge ends, wherein at least each discharge end portion including said discharge end is made of an electrically conductive material containing nickel in a range from 8% to 15% and chromium in a range from 16% to 20%, and is coated with a material having a high electric resistance.

The Examiner relies on the following references:

Compton et al.	3,691,373	Sep. 12, 1972
Myochin et al.	4,574,326	Mar. 4, 1986
Woell et al.	5,241,122	Aug. 31, 1993

(filed Mar. 3, 1992)

Claims 1, 4 through 11 and 14 through 24 stand rejected under 35 U.S.C. § 103 as being unpatentable over Compton in view of Myochin and Woell.

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the brief and answer for the respective details thereof.

OPINION

After a careful review of the evidence before us, we will not sustain the rejection of claims 1, 4 through 11 and 14 through 24 under 35 U.S.C. § 103.

The Examiner has failed to set forth a ***prima facie*** case. It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the reasonable teachings or suggestions found in the prior art, or by a reasonable inference to the artisan contained in such teachings or suggestions. ***In re***

Sernaker, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983). "Additionally, when determining obviousness, the claimed invention should be considered as a whole; there is no legally recognizable 'heart' of the invention." ***Para-Ordnance Mfg. v. SGS Importers Int'l, Inc.***, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995) (***citing W. L. Gore & Assocs., Inc. v. Garlock, Inc.***, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), ***cert. denied***, 469 U.S. 851 (1984)).

In the interest of brevity and simplicity, the Examiner has made a **single** rejection which encompasses the various combinations of several different aspects of the invention. These major aspects are the use an AC voltage component, a coating material having a high electric resistance, a D-P relationship of 4#D/P#6 and a conductive material of nickel, chromium and molybdenum. Each major aspect has been combined with a discharge member having sharp discharge ends in different independent claims, and interchangeably appended dependent claims, along with multiply dependent claims. We find the Examiner's approach quite

helpful and expedient.

With regard to the rejection of claim 1, Appellants agree that Compton teaches sharp discharge ends, and Myochin teaches the use of at least an AC voltage component in a corona discharge device. Appellants argue:

> However, neither of the applied references show, teach or motivate the device recited in appealed claim 1. Thus, it is respectfully submitted there is no basis whatsoever for the Examiner to combine *Compton* with *Myochin* to provide a discharge member having sharp discharge ends to receive a discharge voltage containing at least an AC voltage component. (Brief-page 12.)

Appellants stress that there is no teaching or suggestion in Compton that would lead a person to use its sharp discharge ends with the AC voltage of Myochin, and vise versa, no teaching or suggestion in Myochin that would lead a person to use its AC voltage teachings on a discharge member having sharp ends such as Compton (brief-page 13).

The Examiner responds that Compton teaches the

corona discharge device having sharp discharge ends, and that Myochin teaches the use of AC voltages in a corona discharge device. At page 7 of the answer the Examiner states, "The examiner contends that MYOCHIN is directly applicable to COMPTON because both are concerned with object charging." At page 12 of the Answer the Examiner states "Had Compton used AC or Myochin used a sharp end instead of a wire, then again anticipation would have been encountered."

We agree with Appellants; the Examiner seems to have missed the "point". Myochin does not provide any indication that other shapes of electrode ends would be applicable to it's teachings. Likewise, Compton provides no indication of other suitable voltages, e.g., voltages other than DC. The Examiner's common thread of "object charging" falls short of providing motivation to combine the AC voltage teaching of Myochin with the sharp discharge ends of Compton. We agree with the Examiner that Appellants' arguments regarding the question of ozone generation or decomposition is not recited in claim 1 and thus is irrelevant to the claim limitations. Nonetheless, the question of ozone effects could provide the

basis of motivation between the two references. However, we find no such basis in this instance. Appellants reduce ozone generation via their combination of elements, in the case of claim 1, the combination of sharp discharge ends with an AC voltage component. Appellants make no mention of the use of heat for the decomposition of ozone inherently generated. Myochin uses AC to generate heat that decomposes ozone inherently generated (column 3, lines 29-34). Again, we find no motivation to combine Compton and Myochin.

The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." ***In re Fritch***, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), ***citing In re Gordon***, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." ***Para-Ordnance Mfg. v. SGS Importers Int'l***, 73 F.3d at 1087, 37 USPQ2d at 1239, ***citing W.***

L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d at 1551, 1553, 220 USPQ at 311, 312-13.

Since Myochin teaches the use of AC voltage with a totally different discharge device, and absent any viable rational to combine references, we will not sustain the Examiner's rejection of claim 1. Likewise, we will not sustain the Examiner's rejection of claims 8 through 11, 15, 16, 19, 20, 21/(8,9,15,16), 22/(10,15,16), 23/11 and 24/11, in that they depend from claim 1 and include the same unmet combination.

Claim 4 includes the same sharp discharge ends, additionally, coated with a material having a high electric resistance. Appellants argue, "*Myochin* is directed to [a] discharge device using a wire-type electrode, and thus any coating, including a high electric resistance coating, is thus neither disclosed nor suggested in view of this applied combination of references." (Brief-page 14.)

The Examiner states that Myochin teaches the coating to be well known in that Myochin uses glass to cover the discharge electrode 11a (Answer-page 4). At page 9 of the

answer, the Examiner states:

> It is to be noted per the above that it is the entire structure CA of MYOCHIN [that] is a discharge device. The AC is applied to 11a and 11c and thus results in the ion generation. Thus 11a has much more function than what applicants are asserting as it is not 11c alone that generates the ions, but the entire structure. The claim simply does not preclude a configuration wherein COMPTON's structure 24 would be that of MYOCHIN's 11a and be encapsulated by 11b and still use the other electrode 11c as shown.

Again, it seems the Examiner has missed the "point." We find no motivation to use the coating of Myochin in a corona discharge device **having sharp discharge ends**. The Examiner's reasons for combining Compton and Myochin in rejecting claim 4 are the same as those in rejecting claim 1. As noted supra, there is nothing other than hindsight, to suggest the combination. As noted by the Examiner, if all recited elements were found in one of the references, anticipation of the invention would be found. However, there must be something to suggest the combination, other than the mere existence of each recited limitation appearing in different references. Thus, we will not sustain the Examiner's rejection of claim 4. Likewise, we will not

sustain the rejection of claims 14, 22/14, 23/14 and 23/14, since they are dependent from claim 4 and contain the same unmet combination.

Claim 5 recites the same sharp discharge ends, and additionally, that the pitch (P) between the ends, and the distance (D) to the charge receiving member, are related in accordance with 4#D/P#6. Appellants argue that the claimed range achieves unexpected results and is not merely an optimization of the 2 to 8 range, of which Compton fell into (brief-page 15).

The Examiner questions the unexpected results, indicating that the improvement to Appellants' ratio range of 4 to 6 is merely the optimization of Appellants' original ratio range of 2 to 8, which range was met by Compton via a ratio of 3.

We agree with the Examiner that Appellants have optimized their ratio of 4 to 6 from their ratio of 2 to 8. However, we find that Compton's ratio of 3, falling within the unclaimed range of 2 to 8, does not make the claimed range of

4 to 6 obvious there over. Compton's range of the ratio D/P is 0.75 to 3.0. Compton's preferred (optimized) ratio is 1.42. (See column 5, lines 29-43.) We fail to see how Compton's ratio of 3, or optimized ratio of 1.42, meets or makes obvious the claimed ratio range of 4 to 6. It is not Appellants' disclosure that must be optimized to meet the claim limitations, but the reference's disclosure that should be optimized. Thus, Compton does not teach or suggest (even through optimization) the claim 5 limitations, and we will not sustain its rejection.

Claim 6 requires the same sharp discharge ends, and additionally that the ends be made of recited amounts of nickel and chromium, and be coated with a material having a high electric resistance. The Examiner notes that Compton discloses the sharp ends made of stainless steel (column 3, lines 54-55). The Examiner further notes that Woell teaches it is well known that stainless steel is made of the recited

amounts of nickel and chromium. Appellants argue "As described above, the patent to Woell has nothing whatsoever to do with Appellants' invention, as it is directed to [the] catalytic processing field, and the Examiner's application of that reference is an impermissible aggregation of unrelated references in diverse, unrelated fields." (Brief-page 12.) We interpret this as a non analogous are argument.

In determining whether a claim would have been obvious at the time of the invention, the Examiner must first determine the scope and content of the prior art. ***Graham v. John Deere Co.***, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). "Although § 103 does not, by its terms, define the 'art to which [the] subject matter [sought to be patented] pertains,' this determination is frequently couched in terms of whether the art is analogous or not, *i.e.*, whether the art is 'too remote to be treated as prior art.'" ***In re Clay***, 966 F.2d 656, 658, 23 USPQ2d 1058, 1060 (Fed. Cir. 1992) ***citing In re Sovish***, 769 F.2d 738, 741, 226 USPQ 771, 773 (Fed. Cir. 1985).

In making this determination, we must consider two

criteria. First, it must be determined if the prior art is from the same field of endeavor, regardless of the problem addressed. Secondly, even if the prior art is not in the same field of endeavor, it must be determined whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. ***In re Clay***, *supra*, 966 F.2d at 658-659, 23 USPQ2d at 1060. With respect to the field of endeavor, there is little dispute that Woell is not within the same field of endeavor as a corona discharge device used in an electrophotographic image forming apparatus. However, Woell may still be analogous if it is "reasonably pertinent to the

particular problem with which the inventor is involved." ***Id.*** *See also* ***In re Paulsen***, 30 F.3d 1475, 1481, 31 USPQ 2d 1671, 1675-76 (Fed. Cir. 1994).

The Examiner has shown that the prior art reference, Compton, uses stainless steel in a corona discharge device. Since Compton does not recite the constituents of stainless steel, we find that Woell is reasonably pertinent to

determining the constituents of stainless steel.

Thus we agree with the Examiner that the material of the sharp ends is taught by the prior art. However, for the reasons stated supra, with respect to claim 4, we find the coating is not obvious over the applied references. Thus, we will not sustain the Examiner's rejection of claim 6. Likewise, we will not sustain the rejection of claims 7, 17, 18, 21/(6,7,17,18), 22/(6,7,17,18), 23/(17,18) and 24/(17,18) which depend from claim 6 and include the limitations thereof.

We have not sustained the rejection of claims 1, 4 through 11 and 14 through 24 under 35 U.S.C. § 103. Accordingly, the Examiner's decision is reversed.

REVERSED

JAMES D. THOMAS Administrative Patent Judge	)
MICHAEL R. FLEMING Administrative Patent Judge	) BOARD OF PATENT) APPEALS AND) INTERFERENCES
STUART N. HECKER Administrative Patent Judge	)

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